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C.O.M.M.E.N.T.A.R.I.V.M.

Making music out of almost nothing:
the most radical redefinition of music would be
one that defines music without reference to sound.

Towards a music without sound

The historically earlier question of what sounds? Receded in Fluxus and was replaced with questions such as whether sounds? Or where are sounds in time and space, in relation to the objects and actions that produce them? Or what constitutes the singularity of a sound? In the Fluxus venture the question of noise was forgotten once and for all, and musical sound and sound moved very close to each other. [...] One way Fluxus explored the margins of musical sound was to separate these sounds from their normal connections. In the performance of music, the making of a sound is always connected with a task. For example, sounds will always occur if the task is to play a violin or smash it. But the converse, that every task produces a musical sound, is not always true. There are many tasks executed in the midst of an orchestral performance from which no sounds are supposed to emanate. Fluxus took the next logical move: whereas these small or silent sounds in an orchestra are repressed in favour of the production of the musical work, in Fluxus sound-producing tasks do not need to produce musical sound each and every time, or even produce audible sound, in order to produce works. Some sounds, for instance, are produced only incidentally, as in George Brecht's "Incidental Music". | Douglas Kahn.

Takehisa Kosugi "South" No. 5 | Edition: Victor - SJX-1067 - 73.

Proto-necroglossolalist piece of 1971, in the vein of Moevot, TST, Profane Grace, etc; it comes like a hissing from the abyss, a plague of ghost like cave dwelling locusts to infest your dreams. Hard to believe this is merely voices at work, sounds at times like electronic music or musique concrete. Austere and esoteric at the same time and a chilling listening experience.

THE DESTRUCTION OF QUADRATURE

Rhythm is a beating human heart; its accents of pose and motion are waves of living blood that flow to it and overflow from it.

The movement of the hand conceived as a unit of measurement of time, like the foot that strikes the ground in dance, constitutes the cornerstone of the rhythm. [...] The common concepts of even time and odd time are wrong. The 3/4 and 9/8 times are classified among the odd times. The times 5/4 and 7/4, of mixed measure, should also belong to the class of odd times, since 5 and 7 are odd numbers like 3 and 9. So what? The time 6/8, classified among the even times, as a multiple of 2 is of binary measure, as the multiple of 3 is of ternary measure. The old classifications of even time and odd time are therefore insuf-ficient for the purpose, misrepresenting and confusing the concept of time. Therefore the times must be distinguished in the following way: Binary measurement times, Ternary measurement times, Mixed measurement times. [...] For now I would like to observe first of all that since the musical expression is a synthesis, melodic thought, the numerous elements that participate in it must therefore partially and proportionally sacrifice their individuality and cooperate by mutual agreement in the exaltation of the synthetic effect. Beethoven and Rossini knew this principle perfectly; therefore their music seems more varied in rhythm than that of Wagner and Strauss, although with the latter the rhythm has taken on a variety of movements not even glimpsed in a dream by the other two masters. Strauss drowned the rhythm in the rhythm, contrasting rhythms with rhythms, which neutralized each other and generated the rhythm. In practice, the juxtaposition of two different rhythms is effective as long as it can be regulated with the movements; beyond this limit it produces arrhythmic confusion and the almost impossibility of simultaneous, exact and unconcessional execution by one of the two kinds of rhythm. [...]

Now we finally possess the scientifically absolute principle of rhythm [...] and we possess the practical and malleable means to fix it in its complicated, capricious, distant and unsuspected relationships and combinations, which a genius artist can discover. But this is not enough; from the theoretical-practical principle it is necessary to pass to the grandiose results deriving from its conceptual and formal evolution. The human word by means of the rhythm teaches how its origin must be found in song, the primitive manner of expression common to man and animal.

Therefore it has two values: the one intellectual and conventional, the other expressive and real. In other words, its rhythm and its articulation, the word is an articulated song, regardless of its particular meaning, awaken in the listener a sensation corresponding to that, experienced by a very distant creator of the word itself, through a state of kindred soul. Hence the musical (rhythmic) value of poetry. The instinctive succession of accents in the musical rhythm and in the rhythm of the words is the same, resting on a single base. [...] Towards the end of the Middle Ages, at the time of the troubadours, when a great faith was about to change, we find a third genre alongside religious and popular music: bourgeois music.

Elegant, amorous, easy-going kind, of small proportions, good for quiet digestion, for licentious love, for the house of the noble amateur and that of the prince. Living room genre, in small shapes, with frequent cadences at each period of a certain length. From here began the small monorhythmic parlor dances, the ariette of the quadrature in the composition. Epidemic that has gone through all the centuries of its birth and which today still infects the entire musical field.

The troubadours of good memory, love and joy of our great librettists treated poetry like music; indeed the fact must have happened at the same time, because in those days poetry was never separated from music (song); and precisely for a rhythmic-musical reason the verse must have lost its first quantitative meter. Sirventese, ballad, song, dance song, sonnet etc. are terms common to music and poetry, with hints of the small square parlor dance. The symmetrical forms, measured, repeating themselves after given periods with the same rhythm and with the same rhyming cadences, are also common to the two arts; Dante's poem and Beethoven's symphony are both subject to the tyranny of a quadrature of petty bourgeois dance. I don't say anything about the others. In poetry the free verse marked the end of slavery, making the individual rhythm of words triumph, which under the impulse of a state of mind combine in symphonies of sounds and rhythms that have remained unknown until today. In music, the attempts of Wagner, Strauss, Debussy, and Mascagni have not solved the problem, although they have opened up new and different ways. [...] Strauss, following in the footsteps of Wagner, has symphonized the recitative as it were, introducing tempo changes especially where the musical expression does not maintain the continuous manner: for this reason the effect is almost totally lost. So it is more or less of the others; which in truth, by frequently using the change of measure over time, do not manage to give variety and absolute freedom to rhythmic thinking. Mascagni has the particular merit of having successfully intuited the rhythmic value of the sung word. The introduction of free rhythm into music is a new achievement of futurism. Before expounding our last conclusions, I want to demonstrate by means of the rhythmic analysis of some free verses of the poet Paolo Buzzi, how in the aforementioned verses the alternation of binary and ternary rhythms and the formation of mixed rhythms are an absolutely new rhythmic freedom. and how between verse and verse there is no link of symmetry. [...] The quadrature, with its symmetries and cadences of petty bourgeois dance, is destroyed and replaced by the free intuition of instinctive and sympathetic rhythmic relationships. Once the criterion of stable time has fallen, the insignificant terms of andante, allegro, allegretto, etc. also fall. These are replaced by a term corresponding to the state of mind in which the creator artist finds himself at that given moment. We have definitively destroyed the secular square. Let us therefore acclaim to the free sentiment of rhythm and expression, [...] we futurists create the new order of disorder. | Francesco Balilla Pratella.

PRODUCTION - REPRODUCTION

If we want to understand correctly the mode of human expression and shaping in art and in other related domains, and if we want to achieve progress therein, we have to examine the contributing factors: namely, man himself as well as the means he applies in his creative activity. Man as construct is the synthesis of all his functional apparatuses, i.e. man will be most perfect in his own time if the functional apparatuses of which he is composed, his cells as well as the most sophisticated organs, are conscious and trained to the limit of their capacity. Art actually performs such a training, and this is one of its most important tasks, since the whole complex of effects depends on the degree of perfection of the receptive organs, by trying to bring about the most farreaching new contacts between the familiar and the as yet unknown optical, acoustical and other functional phenomena and by forcing the functional apparatuses to receive them. It is a specifically human characteristic that man's functional apparatuses can never be saturated; they crave ever new impressions following each new reception.

This accounts for the permanent necessity for new experiments. From this perspective, creative activities are useful only if they produce new, so far unknown relations. In other words, in specific regard to creation, reproduction (reiteration of already existing relations) can be regarded for the most part as mere virtuosity. Since it is primarily production (productive creation) that serves human construction, we must strive to turn the apparatuses (instruments) used so far only for reproductive purposes into ones that can be used for productive purposes as well. This calls for profound examination of the following questions: what is this apparatus (instrument) good for? What is the essence of its function? Are we able, and if so to what end, to extend the apparatus's use so that it can serve production as well? Let us apply these questions to some examples: the phonograph. Phonograph. So far it has been the job of the phonograph to reproduce already existing acoustic phenomena. The tonal oscillations to be reproduced were incised on a wax plate by means of a needle and then retranslated into sound by means of a microphone (correctly: diaphragm, moving cone). An extension of this apparatus for productive purposes could be achieved as follows: the grooves are incised by human agency into the wax plate, without any external mechanical means, which then produce sound effects which would signify, without new instruments and without an orchestra, a fundamental innovation in sound production (of new, hitherto unknown sounds and tonal relations) both in composition and in musical performance. The primary condition for such work is laboratory experiments: precise examination of the kinds of grooves (as regards length, width, depth etc.) brought about by the different sounds; examination of the man-made grooves; and finally mechanical-technical experiments for perfecting the groove-manuscript score. (Or perhaps the mechanical reduction of large groove-script records.) | Laszlo Moholy-Nagy

OPERATIONAL LINGUISTICS

Sol LeWitt in 1967 affirms that the idea itself, even if not realized, could be considered as "a work of art as much as a finished product. [...]

Ideas can also be expressed with numbers, photographs or words or in any way chosen by the artist". The analogy, proposed by Joseph Kosuth in his theoretical writings, between the work of art and the "linguistic propositions" (see "propositional logic"), fits into a context of renewed interest in logic and the philosophy of language; the work of art is therefore a tautology as "it is a presentation of the artist's intention".

Kosuthian self-referentiality fully draws on the principles of logical positivism, insisting on the internal coherence of the linguistic system. [...] It is possible to identify a single "system" that the brain resorts to in the interpretation of linguistic syntax and musical sintax, and therefore it seems possible to assume a "same origin" even if the domains remain different, perhaps both developed from our animal and non-specific human ability that Darwin already de-fined "musical protolanguage", which has however maintained, even in animals, a form that from our human point of view seems to have a "syntactic" of a "propositional" type and a "predicative logic", albeit in the absence of human language. [...] Sivio Ceccatto reminds us that, in the light of this approach, what we call thought can be considered to open and close temporal correlations between the discrete units obtained from attentional application. These correlations would be articulated in triads composed of two constituted correlated by a constituted, a mental category, sometimes designated, sometimes not designated, acting as a correlator. Finally, the expansion of these triads into networks of a temporal extension not exceeding 5-7 seconds, requiring the intervention of an additional function of memory, would define the biological limits of human thought. [...] Sergej Ejzenštejn: «the laws of construction of the "inner language" are the same that are at the basis of the most effective constructive principles of artistic production». | Bshy.Krt. Vrtt.kr.

DIAGRAMMATICS: LEARNING MACHINES | THE DIAGRAM AS ABSTRACT MACHINE

Maciunas's learning machines are made mainly of paper and adhesive tape and are structured either chronologically or synchronoptically. The chronologies are in essence an account of the events that took place, a quantitative view of history that does not permit any qualitative conclusions regarding the past. For such an additive listing of facts to have interpretative potential, the causal relations between the individual facts, the intentions behind them, and other processes first have to be exposed.

Only then can these "plain narratives" become "significant narratives," to use William Henry Walsh's distinction; the chronological events listed first have to be causalized, so that they can then serve to explain what happened and give meaning to the events. Arthur Danto was one of those critics who strongly rejected Walsh's distinction between plain and significant narratives. In order to highlight one of its weaknesses he drew on theoretical works in the social sciences and studies on business cycles, which contained narrative parts but could in no way be deemed "significant narratives." Because these studies were more devoted to presenting than explaining, they constituted a wholly different genre for which the definition of "plain narratives" was also not appropriate. Referring to Walsh's interpretation of tabular lists in art history as a "mere skeleton of history," Danto denied that lists of names of famous artists and dates of their works in a particular epoch had any narrative potential. In his view, a list was not a narrative. But because a table may nonetheless free up "historical imagination," it does contain all the preconditions for the generation of significant narrative. Rudimentary details are sufficient to transform a list into a narrative.

If the documentary evidence is used effectively for historiographic construction, then history as record becomes a "plausible narrative." It was this "documentary evidence" that Maciunas sought to generate in his diagrams. He did this by using arrows to assert the existence of historiographic correlations. The arrows that make these connections are a conceptual aid inasmuch as they demand a relational way of seeing on the part of the viewer and so generate a deductive truth. In any case, they underscore the elucidatory potential of schematic presentations of history. Maciunas placed his faith in the persuasive strategy of explanatory diagrams. Like abstract paintings, the diagrams, too, produce narratives and hence meaning. W. J. T. Mitchell compared the art historical diagram with a visual machine for generating language. The generation of meaning in the diagram works with what are literally visual means, one of which is text. In keeping with the "logic of images," however, the power of the iconic extends logos beyond the confines of mere verbality, and in doing so transforms it. It follows that although the meaning of diagrams can always be understood by looking at them, they can never be meaningfully read out loud.

The text elements in Maciunas' history diagrams would amount to nothing more than a series of years, names, and catchwords the connections between which are visualized, but not verbalized in the graphic matrix. For that to happen, the intermittent localization of information would have to be expanded, with the aid of narrativity, to create a space-space being the domain of action. Only when the diagram as a visual machine grinds into action, to extend Mitchell's metaphor, can single names and events be meaningfully linked together in a narrative. Maciunas attempted to break the silence of facts and to transform them into diagrammatical discourse on history, which meant preparing them graphically to make historical interpretation possible.

Maciunas was not a storyteller like Wolf Vostell, who had transformed the individual paths taken by Fluxus artists crossing in New York, Cologne, and Wiesbaden into arabesques. What Maciunas wanted was to explain Fluxus, for despite his bookkeeper's mentality, he was basically an analyst, interested in the what, the when, and the where. Thesequential events of history are translated into spatial order, and take on symbolic form in the grid. This geometrical figure, whether in rigid form or as a graphic matrix, was the basic structuring element of all of Maciunas' knowledgescapes.

The early Chronologies already show that Maciunas wanted to put artistic and sociopolitical eras and periods down on paper. He could not have known just how much this made him a part of the trend known as the diagrammatic turn. Nevertheless, Maciunas did not have any binding models for his charts. He drew ideas and inspiration from a variety of sources and then either developed or discarded them. At first glance, Maciunas' deductive diagrams have more in common with the famous flow chart of Alfred H. Barr Jr. than with the family trees of art by fellow artists Miguel Covarrubias, Nathaniel Pousette-Dart, and Ad Reinhardt, and not just because Maciunas copied out Barr's chart as part of his own studies. Barr, the first director of New York's Museum of Modern Art, had printed his chart on the dust jacket of the catalogue for the Cubism and Abstract Art exhibition of 1936, and had thus given Maciunas a model to follow.

Taking the founding years of the various avant-gardes as his starting point, Barr produced a genealogy of the twentieth century's various -isms. In his Big Chart, Maciunas countered this macrohistorical structure with a microhistorical system in which every event of relevance to Fluxus was dated not just by year, but by an exact date. The idea of polarity comes to the fore in the Barr Chart, in which concepts such as "nongeometrical abstract art" and "geometrical abstract art" are used to split the post 1930 avant-garde into two opposing camps in keeping with the conceptual dialectic posited by Heinrich Wölfflin in his Principles of Art History 1915. This same polarity is clearly reflected in many of the drafts Maciunas produced for his Fluxus diagrams. Like Barr, Maciunas thought in contrasts such as "verbal theatre", meaning bourgeois art, and "anti-art"; in antinomies such as "neo-baroque theatre" and "neo-haiku theatre"; in distinctions such as polymorphism and monomorphism; in short, in oppositions such as happenings and Fluxus. Yet Maciunas did not consider himself bound by these simplified polarities. He staked out the area between these extremes and defined them with analytical acuity. Whereas Barr was analyzing avant-garde art over a period of forty-five years and made out two distinct currents which, after passing through various phases and way stations, became two basic categories, Maciunas was trying to map out a decade of Fluxus history. The direction in which it as developing is not always clear. Some strands suddenly break off like the branches of Reinhardt's satirical family tree How to Look at Modern Art in America. Other developments which for many years remained marginal, on the other hand, continue with out interruption and ultimately become the center of the action. Yet Maciunas' approach goes far beyond these genealogical models. By expressing Fluxus' poly-cultural and intermedial prerequisites in the form of charts, Maciunas made known his opposition to the American tradition of formalism. For him, schematizing the autonomous laws of modernism was no more than art for art's sake. | Astrit Schmidt-Burkhardt.

SOUND PHENOMENA

Emanuele Arielli and Roberta Busechian explain that, according to some theorists, sound, and with it all other sensory phenomena, should be considered only in its internal and proximal manifestation, that is, as a sensory phenomenon that occurs in the sense organs and in our brain through the vibratory activation of sensitive parts of the body. In this case, it can be argued that it is still a proximal phenomenon, although the body proprioception could be considered as distinct and spatially separated from the acoustic experience in the strict sense of the subject. Radically Grimshaw proposes the idea of a "sonic virtuality", that is, the reduction of sound to a pure internal experience that takes place in the auditory cortex. In this regard, we can mention the work of Thomas Ankersmit, who investigates the relationships between the sounds generated and the listening event of the listeners during his performances and installations. His interventions in recent years have been aimed at discovering the so-called otoacoustic emissions, sounds emitted by the inner ear when the cochlea is stimulated by an impulse. [...] It seems possible to identify a single "system" that the brain resorts to, in the interpretation of linguistic syntax and musical syntax, which therefore seems to have a "same origin" even if the domains remain different, perhaps both developed by our "animal" ability and not specific human, which Darwin already defined "musical proto-language", which has maintained, however, even in animals, a form that from our "human" point of view, seems to have a "propositional" type syntactic underlying laws of "predicative" logic, albeit in the absence of "human language". [...]

From this purely internalist point of view, even an imagined sound or hallucinatory auditory experience can be considered sound phenomena. The idea that sound, like any other phenomenal experience, can be traced back to basic neuronal activities has been the subject of interest from artists who have mostly ventured into experiments of sonification of brain activity: for example, between the first experimenters, the Sound translation of the encephalogram waves by Alvin Lucier in Music for Solo Performer, or more recently the performance Eunonia by Lisa Park, in which the artist activates devices capable of vibrating tanks through his brain waves of water, making them resonate. In the clinical setting, today there are methods of inducing brain activity such as transcranial magnetic stimulation that show in principle the possibility of directly generating sensory eperiences, including sound, which are purely imaginary.

Without sketching out futuristic scenarios, the idea of an imaginary sound experience, product of the never resting activity of our senses, is basically associated with the classic provocation of John Cage (and his piece titled "4' 33''") concerning the possibility of arouse attention on the "sound of silence", on background noises but also on the internal suggestions that the listener projects on the apparent absence of sensory stimulation. Even imaginary sound becomes a sound experience. | Bshy.Krt. Vrtt.kr.

THE HEIDER AND SIMMEL EFFECT

Fritz Heider and Marianne Simmel in 1944 showed a sample of viewers a cartoon that represented two triangles and a circle moving in and around an open rectangle. The movements of the three objects were in most cases interpreted as those of two lovers being chased by a third subject who was then rejected. At the root of such an interpretation there would be our innate tendency, confirmed in other researches, to attribute intentions (origins) to observed behaviors, for example by attributing movement to a vital force (see animistic religious beliefs) or in any case to a triggering cause. For our mind it is particularly difficult to admit the existence of the "case" and understand that "the case" can produce ordered and apparently finalized events.

[...] (e.d.: In the Logonic researches, in third cybernetics and in general in the radical constructivism approach, this kind of cognitions are explained as "results" due the dynamics of our "attentional activities", like also other mental categorization process, for example the construct of "order / disorder", or the differencies between "I put, I compose, I arrange"). [...] A characteristic feature of this mental organization in terms of actions is the attribution of the origin of movements to figural units and to motives. It has been shown that this attribution of the origin influences the interpretation of the movements, and that it depends in some cases on the characteristics of the movements themselves, in others on surrounding objects. The way in which the actors are judged is closely connected with this attribution of origin. It is held that this method is useful in investigating the way the behavior of other persons is perceived.| American Psychological Association.

APPARENT BEHAVIOUR

The classic animation experiment by Heider and Simmel revealed that humans have a strong tendency to impose narrative even on displays showing interactions between simple geometric shapes. In their most famous animation with three simple shapes, observers almost inevitably interpreted them as rational agents with intentions, desires and beliefs ("That nasty big triangle!"). Much work on dynamic scenes has identified basic visual properties that can make shapes seem animate. Here, we investigate the limits on the ability to use narrative to share information about animated scenes.

We created 30 second Heider-style cartoons with 3–9 items. Item trajectories were generated automatically by a simple set of rules, but without a script. In Experiments 1 and 2, ten observers wrote short narratives for each cartoon. Next, new observers were shown a cartoon and then presented with a narrative generated for that specific cartoon or one generated for a different cartoon having the same items. Observers rated the fit of the narrative to the cartoon on a scale from 1 (clearly does not fit) to 5 (clearly fits). Performance declined markedly when the number of items was larger than three. Experiment 3 had observers determine if a short clip of a cartoon came from a longer clip.

Experiment 4 had observers determine which of two narratives fit a cartoon. Finally, in Experiment 5, narratives always mentioned every item in a display. In all cases of matching narrative to cartoon, performance drops most dramatically between 3 and 4 items. [...] The tendency to 'anthropomorphize' simple shapes was famously demonstrated by

Heider and Simmel. In their study, observers were asked to view a short, simple animation of two triangles, a circle and a rectangular frame with a "door". When observers were asked to describe the animation, they produced narratives involving the three shapes instead of a literal description of the movement.

For present purposes, a narrative can be defined as an organized interpretation of a sequence of events. [...] Given the classic Heider and Simmel animation, most narratives involved a romantic relationship between the small triangle and the circle who were trying to escape the aggressive triangle.

In producing such stories, observers are adopting what Dennett called the "intentional stance", imposing intentions on the shapes rather than simply offering a report of the visual features and motions. Following Scholl and Tremoulet this mechanism of remembering events in the form of a story seems to be reflexive and automatic. It could be thought of as a way to 'parse' a dynamic stimulus into meaningful units. [...] Turning motion into a story is reminiscent of 'chunking' processes in memory identified by Miller, where the imposition of meaning onto a stimulus allows more of that stimulus to be coded into memory.

Thus, the string "14921776" becomes two dates rather than eight digits. In a similar way, a string of motions might be recoded as the square avoiding the circle.

This narrative recoding differs from chunking of digits because, while it could be seen as a more compact representation of the input, narrative recoding in this manner would not allow the observer to recover the precise details of the unchunked stimulus in the way that those two dates can be restored to a string of eight digits. In this paper, we examine the limits on the use of narrative in perceiving and remembering motion. Specifically, suppose that an observer generates a narrative based on a cartoon with N moving shapes each with its own motion. Will a second observer be able to look at a cartoon and determine if that cartoon inspired that narrative?

The motions we used could interact (e.g. object A 'chases' object B) but we did not use group motion because we assume that, for present purposes, the group would become a single object. Our question about processing limits or capacity is different than the questions that have been the usual focus of interest in studies of the perceived animacy of simple shapes. Most work has focused on the stimulus properties that produce a perception of animacy. Historically, Michotte did the classic work describing when motions and interactions produce a causal interpretation (Did this object cause the motion of that object?).

More recently, Scholl and Gao produced a taxonomy of motions that look animate (Did that spot 'decide' to move or did it simply move when hit by some other item?). Pantelis and Feldman performed a series of studies exploring how human observers attribute mental states to autonomous virtual agents and how they categorize those mental states in dynamic displays where agents forage for food and each agent can explore, gather, attack or flee from other agents:

The interpretation of other agents as intentional actors equipped with mental states has been connected to the attribution of rationality to their behavior. But a workable definition of "rationality" is difficult to formulate in complex situations, where standard normative definitions are difficult to apply. In this study, we explore a notion of rationality based on the idea of evolutionary fitness. We ask whether agents that are more adapted to their environment are, consequently, perceived as more rational and intentional. We created a 2-D virtual environment populated with autonomous virtual agents, each of which behaves according to a built in program equipped with simulated perception, memory, and decision making.

We then introduced a process of simulated evolution that pressured the agents' programs toward behavior more adapted to the simulated environment. We showed these agents to human subjects in 2 experiments, in which we respectively asked them to judge their intelligence and to dynamically estimate their "mental states". The results confirm that subjects construed evolved agents as more intelligent, and judged evolved agents mental states more accurately, relative to nonevolved agents, corroborating a view that the interpretation of agent behavior is connected to a concept of rationality based on the apparent fit between an agent's actions and its environment". | Farahnaz A | Wick | Abla Alaoui Soce | Sahaj Garg | River Grace | Jeremy M. Wolfe.

CHIASM: THE INDIRECT LANGUAGE AND THE VOICES OF SILENCE

Language has the peculiar ability of being forgotten by the speaker: it disappears in the background and only the meanings it expresses emerge on the surface, thus creating the double deception that led us to formulate the first answer. That is, it makes us believe on the one hand that words are only tools, and on the other hand that meanings exist, so to speak, outside words. Merleau-Ponty arriving at the root of speaking means, ultimately, showing that the word is first of all a "gesture that breaks the silence" look for a hammer to drive a nail or pincer to get it out. The word gropes around an intention to mean that it does not regulate itself on a text, and that it is in fact writing it. For Merleau-Ponty, getting to the root of speaking means showing the common origin of the word and its meaning. | Bshy.Krt. Vrtt.kr.

THE INNER SPEECH

The main structural characteristics of the "inner language" for Vygotskij: Abbreviation: minimizing the number of words; fragmentation or disorganization: there is no logical thread; condensation or agglutination: tendency to merge several words into one; minimal syntactic aggregation; absolute preaching: preservation of the predicate to the detriment of the subject or vice versa.

The "internal discourse" (cf. "internal language", "inner speech") is an extremely little frequented topic in both linguistic and psychological studies. In the analysis of all the forms of speech discussed, efforts are made to highlight how decisive the internal communication processes are for the correct implementation of external communication. For example, in the essays on written and textual speech it is shown that the "endophonic" reformulation processes typical of reading / writing, which have always been almost ignored, are instead decisive in clarifying the role of the syntax and order of speech. in written communication. The last essay, then, entitled "The internal discourse", outlines a general framework of this theme by retracing the studies of Lev S. Vygotsky and those of Pavel P. Blonsky, who debated on the subject in the thirties. The essay clarifies a fundamental point of the analysis of human communication processes: there can be no form of external communication that is not based on internal communication. Therefore, the real object of a theory of communication is internal communication, a multi-layered phenomenon that must consequently be analyzed on several levels. Internal discourse is certainly the most identifiable trait of internal communication. To try to clarify its contours and focus on its salient aspects, I have resorted to parameters from numerous fields: historical, philosophical, semiotic, linguistic, psychological, glottoanthropological, neurophysiological.

But certainly this is a first approach to research work that is still largely to come. [...] Saussure, clearly outlines the distinction within the sound image between sound as the result of a physiological process and sound as a mental representation and immediately tries to avoid a possible misunderstanding. That is, the possibility that the external side of the sign, the sound-image, is intended as a material element: "The linguistic sign unites not a thing and a name, but a concept and a sound-image. The latter is not the material sound, a purely physical thing, but the psychological imprint of the sound, the impression that it makes on our senses; it is sensory, and if we happen to call it "material", it is only in that sense and by way of opposition to the other term of the association, the concept, which is generally more abstract".

[...] Therefore, even in silent reading the oral aspect of language plays a decisive role. In reality, the private and silent reading of a text, which we normally practice, is made possible by the reproduction of the graphic trace of the text through an inner sound (or an 'endophonic' vocalization); therefore, it is still a phonic-acoustic process, albeit inaudible.

Previous pre-alphabetical and consonant scriptures could not be read without contextual understanding of the text. Without understanding there could be no vocalization. The alphabet, on the other hand, allows us to read without understanding anything: something we can all do by reading words in a language unknown to us. If, on the other hand, the language is known, the sound we enunciate gives us the sense of what we are reading. The scriptio continua was precisely the representation of a vocal flow. Here is the point. Where did the sound go? For the Greeks and for our ancestors the intrinsic relationship between alphabetic writing and voice was unequivocal.

In many Greek artifacts the alphabetical sequence of words is represented as if it were coming out of the mouth of the person depicted. The link between alphabetic writing and orality, then, remained very strong for centuries. In Benedictine convents, where the 'rule of silence' was in force, the use of the voice was allowed in only one case, that is, during amanuensis. The situation began to change significantly starting from the eighth century AD. when the Irish Catholic religious, who had a rather limited knowledge of Latin, felt the need to separate the words to facilitate the understanding of the texts. From that moment the writing technique of the separation of words began to spread and was slowly acquired everywhere. Introduced as an aid to reading, the separation of words had an immediate impact on the transcription of texts which in those centuries was a decisive activity in the process of social reproduction of knowledge. Normally the copyists performed the transcription through a sort of 'self-dictation' of the original text to be copied; now, thanks to the separation of words, it was possible to visually identify the parts of the text to be reproduced without necessarily having to enunciate them. The visual and silent reproduction of the texts, faster and more practical than the phonic-acoustic one, spread from Irish monasteries to those of the continent and only then in the Benedictine communities during the transcription activities it was possible not to violate the rule of silence that previously did not it could not be ignored because of the continuous scriptio.

In the libraries, then, the uninterrupted buzz of the users that animated the rooms was attenuated until it disappeared completely and in those places it became paradoxically obligatory to do "Silence!". In short, the vocalization during the private reading of books faded until it disappeared completely. Subsequently, thanks also to the facilitations produced by the improved writing techniques and above all by the introduction of typographic technology, silent reading, which in more remote times was reserved only to a few high ranking scholars able to read even the scriptio continua without having to vocalize it, became a practice possible for everyone. The process that over time leads the practice of reading to pass from a completely oral phenomenon to a phenomenon centered on sight and without vocal emissions, must not, however, deceive us and make us think that sight is the only one. tool with which we practice this activity. The formidable acceleration of the acquisition of the meaning of sentences produced by the neutralization of vocalization and the facilitation induced by standardized visual configurations, such as the separation of words, the use of certain characters, etc., give us the feeling that the vocal element has disappeared. and has been replaced by the visual element. In reality, reading with the eyes is only a means of recalling the soundtracks of the words we read in our reproductive imagination.

The phonic aspect of the words, in fact, has not disappeared at all, it is only exceptionally contracted. And, on the other hand, it could not disappear, since the meanings of the words in our consciousness were originally imprinted in oral form. Basically, our primary communication system is and remains the oral one and every subsequent communication system that uses oral language is destined to be grafted onto it. The fact that our phonatory apparatus constantly accompanies the silent reading activity has been observed with appropriate neurophysiological detection tools during research conducted since the 1960s by Soviet neuroscientists and more recently by Italian scholars. These were mainly studies aimed at investigating the neurophysiological correlates of 'internal language' through tests on the neuromuscular reflexes of the tongue and lips during acoustic stimulation. In these experiments external vocal stimuli were used, but also and above all 'internal'. For example, the subject was asked to mentally pronounce sentences or numerical sequences. Silent reading was also part of the mental activities that were the subject of the experiment. The electromyographic traces produced during the experiments show a precise correlation between the articulatory movements of the tongue and lips and the phonic and endophonic stimuli administered from time to time. In the specific case of silent reading, neuroscientist A.N. Sokolov had noted the accentuation of the movements of the muscles of the tongue when reading grammatically complex sentences or sentences in lesser known languages, as well as the weaker movements the greater the ability of the reader. Therefore, even during visual reading the speech apparatus continues to work tirelessly, albeit in a contracted manner and detectable only with appropriate instruments. The observations of neuroscientists confirm that the visual component of silent reading that we practice is only the trigger of a process in which oral language still plays a dominant role. In conclusion, even when we read silently we are actually using the tongue, the one that is in our mouth. That is, to read and understand we use unspoken and yet vocal words. | Franco Fanelli.

SUBVOCALIZATIONS: THE MYSTERIES OF INNER SPEECH

The inner speech includes both the inner voice, which we hear during reading, and the muscular movements of the speech organs, which often accompany reading and which are called subvocalizations.

[...] The "internal speech" is not the inner aspect of the external speech, it is a function in itself. There still remains the word, that is, the thought connected to words. But while in the external speech the thought is embodied in the words, in the inner speech the words die as they carry the thought forward.

The inner word is largely thought of with pure meanings. It is a dynamic, changeable, unstable thing, fluttering between speech and thought, the two more or less stable, more or less delimited components of verbal thought. | Lev Vygotsky.

[...] We are our language, it is often said; but our real language, our true identity, is found in the inner language, in that incessant flow and in a generation of meaning that constitutes the individual mind: it is the inner language, finally, that builds its own world. | Oliver Sacks.

[...] The linguistic characteristics of inner speech: Vygotsky has identified a series of lexical - grammatical features, which are at the fore both in self-centered language and in inner speech.

These features include the omission of the subject, the foreground of preaching, and a highly elliptical relationship between these forms and the linguistic situation. In inner discourse the only grammatical rule at stake is association through juxtaposition. Like the inner language, the "film" uses a "concrete" language, in which me-aning does not derive from deduction but from the fullness of individual attractions qualified by the image that they help to develop. | Paul Thibault.

INNER LANGUAGE

Only the cinema has a means of adequately representing the entire development of thought in a troubled mind. Even when literature succeeds, it is a literature that violates the limits of the orthodox terrain. The most brilliantly accomplished in this area were Leopold Bloom's immortal "inner monologues" in Ulysses. When Joyce and I met in Paris he took a keen interest in my plans for the filmed interior monologue, which opens up a much wider field than that allowed by literature. Despite his almost total blindness, Joyce wanted to see those parts of Potèmkin and of October which, with the means of expression offered by the cinema, follow similar lines. The "interior monologue", as a literary means to abolish the disfinance between subject and object in representing the hero's re-experience in crystallized form, was discovered by scholars in literary experiments dating back to 1888, in the work of Edouard Dujardin, pioneer of the "stream of consciousness", Les lauriers sont coupés. As a theme, as a perception of the world, as a "sensation", as a description of an object, but not as a method, it can naturally be found even earlier. "Slipping" from the objective to the subjective and vice versa is characteristic of the writings of the romantics: E. T. A. Hofmann, Novalis, Gerard de Nerval. As a method of literary style, rather than as a link in history, or a form of literary description, we find it used for the first time by Dujardin, as a specific method of exposition, as a specific method of construction; but only thirty-one years later, with Joyce and Larbaud, did he reach true literary perfection. However, only in cinema does it find its full expression. Because only the sound film is able to reconstruct all the phases and all the specific elements of the course of thought.

What wonderful sketches those assembly sheets were! Like thought, they sometimes proceeded through visual images. Through the sound. Synchronized or unsynchronized. Then how you play. Please tell. Or with sound images: with objectively representative sounds... Then, suddenly, words formulated in a clearly intellectual way: "intellectual" and dispassionate as spoken words. With a black screen, a hasty, image-free view. Then in passionate and disconnected language. Names only. Or just verbs. Then interjections. With alternating motions of aimless forms, swirling in synchronism with them.

Then visual images chasing each other in complete silence. Then linked to polyphonic sounds.

Then polyphonic images. Then, simultaneously, both. Then interpolate into the outward course of the action, then interpolate elements of the outward action into the internal monologue. As if they present within the characters the intimate game, the conflict of doubts, the explosions of the passone, the voice of reason, quickly or in slow motion, marking the different rhythms of one and the other and, at the same time, contrasting them with the almost complete absence of external action: feverish internal debate behind the stone mask of the face. How fascinating it is to follow the flow of one's thoughts, especially when excited, in order to catch oneself while looking and listening to one's mind! How one speaks "to oneself", in a different way from when one speaks "outside oneself". The syntax of internal speech of instinct from external speech. The throbbing internal words that correspond to the visual images. Contrasts with external circumstances. How they act on each other. Listening and studying, in order to understand the structural laws and merge them in the construction of an inner monologue aimed at the maximum to make the torment of the inner experience tragic. What a fascinating thing! And what a field open to creative invention and observation. And how obvious it becomes that the material of sound cinema is not dialogue. The real material of sound cinema is of course the monologue. And as unexpectedly, in the practical incarnation of an unexpected and particular concrete case to be expressed, it refers to the "last word", theoretically foreseen for some time, on the form of montage in general. That the form of montage, as a structure, is a reconstruction of the laws of the thought process. The syntax of the inner language is opposite to that of the verbal language. The inner language, the flow and succession of unformulated thoughts in the logical constructions in which the expressed and formulated thoughts are expressed, has its own particular structure. This structure is based on a very distinct set of laws. What is remarkable about it, and this is the reason why I discuss it, is that the laws of construction of the inner language are precisely those laws which lie at the basis of all the variety of laws governing the construction of the form and composition of artwork. And there is not a single formal method that does not reveal itself to be the faithful portrait of a determined law governing the construction of the inner language, distinct from the logic of the language expressed. It could not be otherwise. We know that underpinning the creation of form are thought processes based on sensation and image. The inner language is precisely at the stage of the figurative-sensorial structure, having not yet reached that logical formulation that language takes on before becoming spoken language.

The inner language is precisely at the stage of the figurative-sensorial structure, having not yet reached that logical formulation that language takes on before becoming spoken language. It is interesting to note that, just as logic obeys a whole series of laws in its constructions, this inner discourse, this sensorial thinking is subject to no less clear and precise structural laws and peculiarities. They are known and, in the light of the considerations set out here, represent an inexhaustible reserve of laws for the construction of form, the study and analysis of which are of extraordinary importance in order to master the "mysteries" of formal technique. | Sergej M. Ejzenstejn.

THE HYPNOTIC LANGUAGE

Most of the classical hypnotic phenomena were discovered quite by accident as natural manifestations of human behavior that occurred spontaneously in trance without any suggestion whatsoever. Classical hypnotic phenomena such as catalepsy, anesthesia, amnesia, hallucinations (usually sounds or colors, similar to dreams or perceptions of semi-sleep), age regression, and time distortion, mild sleepwalking, etc. are all spontaneous trance phenomena that were a source of amazement and bewilderment to early investigators. Consciousness does not always recognize its own altered states. How often do we not recognize that we are actually dreaming? [...] When one is relaxed, as is typical of most trance experiences, the parasympathetic system physiologically predisposes one not to do rather than to make any active effort of doing. Similarly when we are relaxed and the unconscious takes over, we usually feel comfortable and do not know how the unconscious carries out its activities. Not knowing and not doing are synonymous with the unconscious or autonomous responsiveness that is the essence of trance experience. An attitude of not knowing and not doing is therefore of great value in facilitating hypnotic responsiveness.

[...] When they come about spontaneously, they are the natural result of the dissociation or reorganization of the usual frames of reference and general reality orientation which is characteristic of trance. [...] A direct suggestion makes an appeal to the conscious mind and succeeds in initiating behavior when we are in agreement with the suggestion and have the capacity actually to carry it out in a voluntary manner.

If someone suggests, Please close the window, I will close it if I have the physical capacity to do so, and if I agree that it's a good suggestion. The conscious mind does not know how to initiate psychological experience and behavior change to the degree that one would like. In many such situations there is some capacity for desired patterns of behavior, but they can only be carried out with the help of an unconscious process that takes place on an involuntary level. We can make a conscious effort to remember a forgotten name, for example, but if we cannot do so, we cease trying after a few moments of futile effort. Five minutes later the name may pop up spontaneously within our minds. Whathas happened? Obviously a search was initiated on a conscious level, but it could only be completed by an unconscious process that continued on its own evenafter consciousness abandoned its effort. Sternberg has reviewed experimental data supporting the view that an unconscious search continues at the rate of approximately thirty items per second even after the conscious mind has gone on to other matters. [...]

Indirect suggestion: suggested behavior is actually a subjective response synthesized from within. It is a subjective response that utilizes the unique repertory of life experiences and learning.

The indirect forms of suggestion are semantic environments that facilitate the experience of new response possibilities. They automatically evoke unconscious searches and processes within us independent of our conscious will. [...] The basic unit of ideodynamic focusing is the truism: a simple statement of fact about behavior experienced, that it cannot be denied. Talkings about certain psychophysiological processes or mental mechanisms as if he were simply describing objective facts. Actually these verbal descriptions can function as indirect suggestions when they trip off ideodynamic responses from associations and learned patterns that already exist within, as a repository of life experience. The generalized reality orienta-tion usually maintains these subjective responses in appropriate check when we are engaged in ordinary conversation. When attention is fixed and focused in trance, so that some of the limitations of the habitual mental sets are depotentiated, the truisms may actually trip off a literal and concrete experience of the suggested behavior.

Five stage paradigm of the dynamics of trance induction and suggestion:

1. Fixation of Attention: Utilizing the patient's beliefs and behavior for focusing attention on inner realities. The point of fixation need not be external; it is even more effective to focus attention on the own body and inner experience.

2. Depotentiating Habitual Frameworks and Belief Systems: Distraction, shock, surprise, doubt, confusion, dissociation, or any other process that interrupts the patient's habitual frameworks. Their belief systems are more or less interrupted and suspended for a moment or two. Consciousness has been distracted. During that momentary suspension latent patterns of association and sensory-perceptual experience have an opportunity to assert themselves in a manner that can initiate the altered state of consciousness that has been described as trance or hypnosis.Any experience of shock or surprise momentarily fixates attention and interrupts the previous pattern of association. Any experience of the unrealistic, the unusual, or the fantastic provides an opportunity for altered modes of apprehension. The authors have described how confusion, doubt, dissociation, and disequilibrium are all means of depotentiating patients' learned limitations so that they may become open and available for new means of experiencing and learning, which are the essence of therapeutic trance.

3. Unconscious Search: Implications, questions, puns, and other indirect forms of hypnotic suggestion. In everyday life there are many approaches to fixing attention, depotentiating habitual associations, and thereby initiating an unconscious search for a new experience or solution to a problem.

4. Unconscious Process: Activation of personal associations and mental mechanisms by all the above. The indirect forms of sug-

gestion help patients bypass their learned limitations so they are able to accomplish a lot more than they are usually able to. The indirect forms of suggestion are facilitators of mental associations and unconscious processes.

5. Hypnotic Response: An expression of behavioral potentials that are experienced as taking place autonomously. The hypnotic response is the natural outcome of the unconscious search and processes [...] the hypnotic response appears to occur automatically or autonomously; it appears to take place all by itself in a manner that may seem alien or dissociated from the person's usual mode of responding on a voluntary level. | Milton H. Erickson | Ernest L. Rossi.

TRACE | INTERNAL SEARCH | GUIDE

Trance is a particular state of our attention. We are in a slight trance even when we stare at a panorama or are completely absorbed by a mental or sentimental commitment, when we are immersed in a game, in a melody, in a film or in day dreams, or equally when we suffer a trauma sudden and frightening and we remain "petrified" or frozen in our emotions. The unconscious is understood by Milton Erickson as a great reservoir of resources: "It associates images, sensations, ideas and symbols according to relationships of analogy and similarity that they have between them, operating in a permanent present. These chains of associations break and intersect. they intertwine and dissolve in a complexity that defies any rational analysis. Erickson takes up ancient healing procedures such as the use of metaphors

"They help induce a hypnotic state. The story, to be hypnotic, must have metaphorical relationships with the problem in question, but above all it must not have an evident rational relationship with it, otherwise the conscious mind would appropriate it to dissert". All living beings and nature as a whole. responds to particular rhythms of activity rest. There are biological circadian rhythms (circadies = about one day), ultradian rhythms (occurring several times a day) and infradian rhythms that require more than a day, such as the menstrual cycle, seasonal rhythms. In the 1950s it was discovered that sleep is divided into REM phases (which are equivalent to phases of activity and occur approximately every 90-120 minutes) and phases of deep rest. the day alternate phases of rest with phases of activity according to a rhythm inverse to the previous one: 90-120 minutes of active phase with a maximum peak of performance. The activity phase is followed by a rest phase of about 20 minutes i in order to recover strength, daily trance phenomena can occur in this phase.

"In those moments, people [...] tend to stare, right or left, depending on the dominant brain hemisphere, and take on that 'absent' or 'empty' look. They can actually close their eyes, immobilize the body (a form of catalepsy), repress certain reflexes (such as swallowing, breathing, etc.) and seem momentarily forgetful of everything around them, until they have completed their inner search at an unconscious level for new ideas , responses and frames of reference that will re-establish their general orientation towards reality". [...] Usually different types of trance are distinguished: hypnotic, mystical, psychedelic, etc.

The state of trance can therefore be induced in various ways. If during the trance the person's attention persists for a sufficient time in his monoideism then an ideoplasia can manifest itself. In this case the idea has transformed its content into action, by virtue of the close correlation between mind and body. It can even come to the realization of various psychosomatic phenomena. On the other hand, faith consists of some well-seasoned "ingredients": strong positive expectation, emotional activation, lowering of the critical function and monoideism. For the magician, imagination is reality, because when a man imagines something he actually creates a thought form. These thought forms have a peculiar characteristic, they can escape the control of their creator which remains an effect. In other cases it happens that the thought form survives the author. For example, the worlds described by Tolkien still exist and can be visited by all of us when we read his books. The same goes for any fictional character. These characters exist in a parallel world, continually enhanced and vitalized by all who still believe in them. In a similar way in hypnosis we speak of plastic monoideism: when a person concentrating on a single point comes to cancel everything else and is guided by that point, by that image. In hypnosis it has been shown that through ideoplasias or if you want thought forms it is possible to act on your body. Particularly evident effects of this phenomenon are present in sectarian groups, in fundamentalisms but also the monoideism of athletes allows them to overcome obstacles that are insurmountable for others.

Plastic monoideism is nothing more than a very powerful phenomenon of ideodynamic response. In fact, hypnosis is nothing more than a trance (i.e. a state of strong responsive attention) in which ideoplastic phenomena occur. It is therefore said that hypnosis is a state of trance (altered state of consciousness) with self or heteroinduced ideoplastic phenomena. [...] "Doing things with words". This is a term in Austin's theory of speech acts. According to this theory, a speech act is a sentence that does not serve to define something true or false but to bring it into being. A statement of this type is called performative to distinguish it from constants. [...] Hypnotic language for indirect induction: in everyday life we actually continue to create a consensual reality because the words evoke a series of idiosyncratic meanings related to our world map through transderivational research.

Bandler and Grinder have identified a number of linguistic forms used by Milton Erickson to induce hypnosis. They are linguistic forms (verbal and non-verbal) that we also use unconsciously in daily life, focusing his attention on the inside in a transderivational search up to indirectly guiding him to the hypnotic response.

"Trace", "Internal search", "Guide".

"Tracing": Nominalizations, deletions, unspecified verbs, unspecified referential index, truisms, referential index shift, mind reading, dominant representational system, use of the client's strategies, use of the client's metaphors and idioms, cover all the possibilities of a class of answers, open sentences.

"Internal search": Ambiguity (phonological, syntactic, scope, punctuation), sentence fragment, selective restriction violation, quotations, metaphors, anecdotes, paradoxes, shock and surprise, questions to facilitate new possibilities of answer.

"Guide": Causal modeling (conjunctions, implicit causative, cause-effect), presuppositions, trick questions, indirect forms of extraction (embedded questions, embedded commands, quotations, underlining by analogy, negative orders, conversation postulates, referential index generic with suggestion of noun phrase), lost performative, apposition of opposites, negation, not... until, not knowing / not doing, double bonds, conscious / unconscious dissociation, ratification and deepening of the trance, dissemination, reorientation to the state of wakefulness, cause and effect in the present and in the future, time distortion, modal operators.

Metaphorical and paradoxical prescriptions: in this regard Alejandro Jodorowsky, founder in 1962 of the "panic" theater with Fernando Arrabal and Roland Topor, invented a form of therapy that he calls psychomagic which takes up many themes of the Ericksonian approach but which develops from from meeting a Mexican healer called Pachita.

Regarding this experience, he writes: "I would not dare to say that Pachita's manipulations were real operations; but I can't even say that they weren't ... in the end, I came to the conclusion that it doesn't matter. Questions of this kind they worry us because we believe in an "objective" world. [...] However that may be, one cannot fail to recognize that Pachita was brilliant. If hers was theater, what a great actress! If it was illusionism, that woman was the greatest illusionist of all time! And what a psychologist... [...] Thanks to her I understood that all, or almost all, we are children, sometimes adolescents. [...] from the moment you felt her hands between yours, that old woman in which you felt her hands in yours, that old woman appeared to you in the guise of the Universal Mother and you could no longer resist her. [...] But after the contact, my resistance melted as snow in the sun Pachita knew that every adult, even the most self-confident, sleeps a child eager for love. [...] Observing Pachita, I discovered that, when an operation is pretended, the human body reacts as if it were subjected to an authentic intervention. If I tell you that I will open your belly to cut out a piece of liver, if I force you to lie down on a table and reproduce exactly the sounds, smells and manipulations, if you feel the knife on your skin, if you see the blood coming out, if you have the feeling that my hands are turning over in your gut and pulling something out, you will be "operated". The human body accepts symbolic language in a direct and naive way, as happens with children. [...] So, truth or lie, it doesn't matter. If there is cheating, it is a sacred cheating ... [...] It was the way of using the language of objects and the symbolic vocabulary, in order to produce certain effects on one's neighbor; in a nutshell, how to address the unconscious directly through her language, whether through words, objects or actions. This is what I learned from Pachita". [...]

Technique of confusion in hypnosis: any experience of shock and surprise momentarily fixes our attention; it weakens the habitual frames of reference and conscious belief systems (makes them unstable) by forcing us to start an unconscious search in an attempt to find an answer to the unexpected situation. The inner search involves a state of introspection that initiates a trance that can be used to elicit autonomous and involuntary reactions or to "pass" suggestions below the conscious threshold. This momentary void of awareness can then be filled with the appropriate behavioral demand. Indeed, suggestion passes much more easily into states of confusion, doubt, surprise since they predispose the subject to accept the first idea that can bring order to his cognitive landscape, thus realigning internal data and restoring psychic balance. Shock and confusion can also be useful in deconstructing acquired behaviors and belief systems. [...]

Dissemination: The telling of stories and anecdotes is an excellent two level communication technique capable of setting in motion the appropriate associative processes. To enhance this communicative approach, the preacher or healer can also make use of the dissemination technique. If it is true that the conscious mind (the left hemisphere) tends to decipher the meaning of a speech step by step and to insert it within a certain context, it is also true that each word is the bearer of individual and literal associations beyond of the context in which it is located. This simply means that once the faithful is called on the stage in the presence of the charismatic figure, the repressed associations, which remain in the unconscious, are sometimes reactivated, because "in the particular conditions of the trance, where dissociation and literalism are increased, they can play a significant role in facilitating a behavioral response that surprises the conscience "Literalism, allusions, puns, are indeed bread for the teeth of the unconscious. These phrases escaped the attention of the conscience that had been fixed in listening to the sermon function as subliminal suggestions. Therefore, some words and concepts will be disseminated throughout the speech with a particular tone of voice and through almost imperceptible gestures. Such suggestions are the equivalent of the operator's direct and overt suggestion during a formal trance induction. I found the best description of this strategy in Watzlawick's The Language of Change:

"[...] in other words: imagine a page of a book that seems to contain nothing more than a long, unimportant, boring, indeed soporific description, on which, however, some words are underlined. If now these words are read in the order in which they occur, they give a completely different meaning from that of the page they are in. [...] the perception of the hidden image should typically be a capability of the right hemisphere and therefore the dissemination technique a gateway to this hemisphere." [...]

This description presents interesting analogies with the researches of Saussure who, analyzing the structure of Greek and Latin poetry, found traces of a secret activity of the poet, to which he gave the name of anagrams. Or think of schizophrenics and their characteristic word salads, it is a torrent of sentences, disconnected and incoherent.

Milton began to study these speeches thinking that they could be nothing more than a mask to hide meanings, fragmented and dispersed in verbal expressions. In this way Erickson developed his particular communicative style which consisted in producing incoherent speeches among which to hide, in a fragmented form, a meaningful communication that stood out in the background thanks to the analogical marking (analog sign). | Fabio Marchi.

LIMINALITY: A FRAMEWORK FOR COMPOSITION

Studies of subjective rhythmization, spontaneous tempo, pulse perception, durational discrimination, and so forth are discussed with respect to their implications for meter. Not only do there seem to be upper and lower bounds for musical meter (from 100 ms to 6 s, depending on context), but there also appear to be important thresholds within this range (around 200–250 ms, 500–700 ms, and 1.5–2.0 s). The ranges and phenomena investigated include the following:

The range of subjective rhythmization: the longest and shortest interonset periods for continuous, isochronous (and otherwise undifferentiated) stimuli that we tend to group into twos or threes;

The range of spontaneous tempo: the longest and shortest periods in which we are able produce a steady beat;

The values for preferred tempos: the rate at which we are most comfortable at producing a steady beat;

The range in which we are most likely to hear a pulse or tactus;

The indifference interval: a period that we tend to judge as neither too long or too short;

Our sensitivity to changes of tempo at different initial rates and in different contexts;

Our sensitivity to differences of duration relative to the magnitude of the durations involved;

The shortest and longest durations musicians tend to produce in rhythmically palpable patterns (i.e., apart from trills, violin tremolos, vibratos, etc.);

The extent and limits of the psychological present.

Meter is often defined as a regular pattern of alternating strong and weak beats, but such definitions usually leave the terms "regular," "beat," and the criteria for "strong" versus "weak" undefined. Meter is also viewed, at least by most music theorists and psychologists, as being distinct from rhythm, where rhythm involves the phenomenal pattern of durations (more precisely, interonset intervals or "IOIs") and dynamic accents. Metric attending involves several layers of attentional activity. In his pioneering study, Bolton, in 1894 ,worked on the problem of the limits of the frequencies at which subjective rhythmization could appear. He gave as the lower limit an interval of 115 msec, and as the upper limit, 1580 msec. These limits should command our attention, since they are approximately those of the durations on which all of our perceptions of rhythm are based. Bolton's findings have been supplemented by much subsequent research, but his findings have held up remarkably well. His lower limit (100 ms) for subjective rhythmization also appears to be a limit for durational discrimination. Monohan and Hirsh found "listeners can discriminate an interval between two brief sounds with great precision; for intervals down to about 100 ms". "Timings less than 100 ms obey a different set of rules". One hundred milliseconds is also the minimum time to allow for the cortical processing of musical elements, and it correlates with Lehiste's observation that the fastest possible vocal articulation of rapidly repeated syllables is about 120 ms. Friberg and Sundström, in a study of jazz drumming, found that "the absolute duration of the short note was found to be constant at 100 ms for medium to fast tempi, thus indicating a limit on tone duration."

Given this pattern of results from both the perceptual and performance side of rhythmic behavior, it seems reasonable to propose that the lower limit for elements in a metrical pattern is around 100 ms. This 100-ms limit is shorter than the lower end of the range in which one may perceive a beat or pulse. Warren investigated subjects' ability to perceive repeated melodic patterns and found that they were able to do so within a range of 200–2000 ms for successive note onsets. A range of "maximal pulse salience" extends from 200 to 1800 ms, with a pronounced peak anchored between 600 and 700 ms. Although we can feel a beat at any tempo within the extended range (200–1800 ms), beats are most strongly felt at a moderate tempo, around 80–90 beats per minute (600–700 ms).

Fraisse notes that above 1800 ms, subjective rhythmization becomes impossible and successive sounds are not perceptually linked. The lack of perceptual linkage prevents us from hearing such sounds in terms of a coordinated motion or movement, and Fraisse has emphasized the importance of the connection between hearing rhythm and perceiving movement. Thus there is a difference at the lower end of the metric spectrum as to the shortest IOIs that can be heard as beats (200 ms) versus the shortest IOIs that can be accurately produced and discriminated (100 ms). This makes some musical sense, as the 100-ms intervals may correspond to the smallest possible IOI for a beat subdivision, which by definition will be, in the minimal case of binary subdivision (i.e., simple duple or simple triple meter), 1/2 of the beat IOI (the implications of this observation are discussed at greater length in the following section).

Likewise, the upper limit for the total timespan of a metrical unit is longer than that for beat succession and subjective rhythmization (such as that reported by Bolton) because a measure is a higher order pattern of events. Woodrow, found that: there thus appears to be one duration, at around 1.5–2 seconds, at which the reproduction of empty intervals, synchronization, and the experiencing of rhythm all begin to become difficult and another duration around 34 sec (2–4 sec) which represents the vanishing point of the capacity for synchronization, and for experiencing rhythm. The ability to reproduce empty time intervals, it is true, does not disappear at 34 sec. It is, however, barely possible that there may be some connection between a duration of twice this length, namely 6.8 sec, which is near the upper limit of rhythmical measure, and the fact that in this neighborhood the increase in the relative variability in the reproduction of temporal intervals.

The constraint on the scope of larger temporal patterns is correlated with our sense of the psychological present. Although the idea of the psychological present (or "specious" present) goes back to James, Michon has more recently defined it as "the time interval in which sensory information, internal processing, and concurrent behavior appear to be integrated within the same span of attention". This span of attention may vary: some agreement is evident among writers concerning estimates of the typical time span of this integration.

Fraisse states that it seems to have an upper limit of about 5 seconds, but is more typically nearer 2–3 seconds in time span. Michon agrees with the average value of 2–3 seconds, but places the upper limit at 7–8 seconds. Poppel has similarly estimated the maximum duration of the psychological present to lie between 4 and 7 seconds. And if 2 seconds seems to be the limit for hearing successive events as temporally connected outside of a metric hierarchy, then it makes sense that the absolute value for a measure might be from about 4–6 seconds (i.e., twice or three times the length of the "slowest possible beat"). Therefore, it seems reasonable to require that rhythmic patterns be comprised of elements that are at least 100 ms in length, and that the total length of a metrical pattern cannot exceed 5-6 s.

Remembering the caveats noted earlier, these values define a temporal "envelope" for musical rhythm and meter. Durations and duration sequences that occur in the metric envelope are thus "accessible to the senses," to use Heusler's phrase. There would seem to be three significant thresholds within the metric envelope, one around 200–250 ms, another around 600–700 ms, and a third around 1.5–2 s.

The last threshold is, of course, related to the limits on subjective rhythmization and beat perception noted earlier. The special significance of the 600–700 ms period has long been known, and this value appears in many studies. Early psychophysical researchers sought to determine an "indifference interval," a tempo that sounded neither too slow nor too fast. A summary of various studies on temporal perception and performance, suggests that meter can only occur with respect to periodicities in a range from about 100 ms to about 6 s. In addition, we may grasp a sense of beat or tempo in a subrange of 200 ms to about 2 s, though we have a preference for periodicities around 500–700 ms. There seems to be another important temporal threshold around 200–250 ms. Given these ranges and thresholds, most meters are a composite of different "kinds of time." The tactus level of meter is of cardinal importance, as a metrical pattern requires a tactus coordinated with at least one other level of organization (usually a superior level, but not always). There is a strong interaction between tempo, the rate of the tactus, and the formal organization of a metric hierarchy. As the tempo changes, there may be changes in the perception of the perceived beat and there may be changes in the affective quality of the beat as well. The choice of a particular tempo also limits the scope of metric possibilities, for as the tactus moves across its range in the metric envelope, other levels are subject to various floor and ceiling affects. Changes in tempo affect both the number and the kinds of metric patterns that are possible. Beats and subdivisions have a special relationship. The relationship between the absolute value for the lower limit on metrical attending (100 ms) and the lower limit on beat perception (200 ms) suggests that even when not phenomenally present in the musical surface, beat subdivisions may be latent in our perception of the beat. The organization of subtactus level(s) affects the perceived quality of motion of the tactus (and higher) levels.

The subjective or qualitative differences between meters (and the same meter in different tempos), may make more sense to musicians than to psychologists; these differences are not necessarily ones that will be manifest in terms of empirical measures (reaction times, discrimination thresholds, etc.). They are more likely to be found via listener introspection, or perhaps in the kinds of affective and motional descriptions listeners will tend to give various rhythmic figures at different tempos. The examination of how metrical hierarchies may interact with perceptual and cognitive thresholds raises a chicken and egg problem: are the thresholds found in psychological research artifacts of hierarchical attending/motor control strategies?

Or are some aspects of temporal behavior and judgment (e.g., long-term tempo drift, categorical perceptions of rhythm and meter, attractor tempos, time estimation biases) the product of hierarchical attending/complex motor behavior interacting with certain absolute temporal thresholds? What the observations just given suggest, however, is that in order to unravel whatever interrelationship(s) there may be between various temporal thresholds and complex attentional strategies, researchers in music perception and cognition will need to develop experiments and experimental stimuli that explicitly take the hierarchical relationships among metrical levels into account. | Justin London.

SPECIOUS PRESENT

The specious present is the time duration wherein one's perceptions are considered to be in the present. Time perception studies the sense of time, which differs from other senses since time cannot be directly perceived but must be reconstructed by the brain.

The relation of experience to time has not been profoundly studied. Its objects are given as being of the present, but the part of time referred to by the datum is a very different thing from the conterminous of the past and future which philosophy denotes by the name Present. The present to which the datum refers is really a part of the past, a recent past, delusively given as being a time that intervenes between the past and the future. Let it be named the specious present, and let the past, that is given as being the past, be known as the obvious past. All the notes of a bar of a song seem to the listener to be contained in the present.

All the changes of place of a meteor seem to the beholder to be contained in the present. At the instant of the termination of such series, no part of the time measured by them seems to be a past. Time, then, considered relatively to human apprehension, consists of four parts, viz., the obvious past, the specious present, the real present, and the future. Omitting the specious present, it consists of three... nonentities, the past, which does not exist, the future, which does not exist, and their conterminous, the present; the faculty from which it proceeds lies to us in the fiction of the specious present.

The concept was further developed by philosopher William James. James defined the specious present to be "the prototype of all conceived times, the short duration of which we are immediately and incessantly sensible". C. D. Broad in "Scientific Thought" (1930) further elaborated on the concept of the specious present, and considered that the Specious Present may be considered as the temporal equivalent of a sensory datum.

Finally, the claim of what precisely is being affirmed, in affirming the 'existence' of the specious present, is difficult to clarify. Philosophical theories of time do not usually interpret time to be in any unique way a production of human phenomenology, and the claim that we have some faculty by which we are aware of successive states of consciousness is trivially true. | Bshy.Krt. Vrtt.kr.

SUBJECTIVE RHYTHMIZATION

In music, as in several other domains, events occur over time. The way events are ordered in time is commonly referred to as rhythm. In musical rhythm, unlike in other domains, we often perceive an underlying regularity in time, which is known as the pulse or the beat. The beat is a regularly recurring salient moment in time. The beat often coincides with an event, but a beat can also coincide with plain silence. At a higher level, we can hear regularity in the form of regular stronger and weaker beats and at a lower level, we can perceive regular subdivisions of the beat. We thus can perceive multiple levels of regularity in a musical rhythm, which together create a hierarchical pattern of saliency known as metrical structure or simply, meter. In this chapter, we will mainly focus on the processes underlying the perception of the most salient level of regularity in this perceived metrical structure: the beat. The sensory and cognitive mechanisms of beat perception have quite a history as a research topic. These mechanisms have been examined in music, or a stage full of line dancers that dance in synchrony. And in a way it is indeed trivial. Most people can easily pick up a regular pulse from the music or can judge whether the music speeds up or slows down. However, the realization that perceiving this regularity in music allows us to dance and make music together makes it a less trivial phenomenon. Beat perception might well be conditional to music, and as such it can be considered a fundamental human trait that, arguably, has played a decisive role in the origins of music. Three properties of the ability to perceive a beat can be looked at when considering its role in the origins of music: whether it is an innate (or spontaneously developing) ability, whether it is specific to the domain of music and whether it is a species-specific ability. "Beat Perception" as a Fundamental Cognitive Mechanism It seems a trivial skill: children that clap along with a song, musicians that tap their foot to the music, or a stage full of line dancers that dance in synchrony. And in a way it is indeed trivial.

Most people can easily pick up a regular pulse from the music or can judge whether the music speeds up or slows down. However, the realization that perceiving this regularity in music allows us to dance and make music together makes it a less trivial phenomenon. "Beat perception" might well be conditional to music, and as such it can be considered a fundamental human trait that, arguably, has played a decisive role in the origins of music.

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Innateness, Domain and Species Specificity. Scientists are still divided whether beat perception develops spontaneously (emphasizing a biological basis) or whether it is learned (emphasizing a cultural basis). Some authors consider a sensitivity to the beat to be acquired during the first years of life, suggesting that the ways in which babies are rocked and bounced in time to music by their parents is the most important factor in developing a sense for metrical structure.

By contrast, more recent studies emphasize a biological basis, suggesting that beat perception is already functional in young infants and possibly even in 2–3 day old newborns. Furthermore, the perception of a beat occurs more easily with auditory than visual temporal stimuli, with audition priming vision, but not vice versa. With regard to the species specificity of "beat perception", it is still unclear which species have this ability. It was recently shown that rhythmic entrainment, long considered a human-specific mechanism, can be demonstrated in a select group of bird species, and not in more closely related species such as nonhuman primates.

The observations regarding "beat perception" in animals support the vocal learning hypothesis that suggests that rhythmic entrainment is a by product of the vocal learning mechanisms that are shared by several bird and mammal species, including humans, but that are only weakly developed, or missing entirely, in nonhuman primates.

Possible Mechanisms of Beat Induction: the Perception of a Beat

The perception of a beat is a bidirectional process: not only can a varying musical rhythm induce a regular beat, a regular beat can also influence the perception of the very same rhythm that induces it. Hence beat perception can be seen as an interaction between bottom up and top down sensory and cognitive processes. Initially, we induce a beat from various cues in the music. Once a context of regularity is established, we use the inferred beat to interpret the music within this context and to predict future events.A perceived pulse is stable and resistant to change. However, if the sensory input provides clear evidence for a different metrical structure, our perception of the beat can change. The relation between the events in the music and the perceived temporal regularity thus is a flexible one. We can perceive regularity in music at different metrical levels and thus at different timescales.

It should be noted that the perception of temporal regularity is restricted by several perceptual boundaries. We can perceive temporal regularity with a period roughly in the timescale of 200 – 2,000 milliseconds. Within this range, we have a clear preference for beats with a period around 600 ms or 100 beats per minutes. Beat Induction Through Accent Structure: to infer a metrical structure from music we make use of accents. In a sequence of events, an accent is a more salient event because it differs from other, non-accented events along some auditory dimension. When accents exhibit regularity in time, we can induce a regular beat from them. A sequence of events in time, such as a musical rhythm, also contains purely temporal accents that arise from the structure of event onsets rather than from acoustic changes in the sound. Events are perceived as more or less salient depending on their length and position in a rhythm.

Povel and Essens describe three ways in which a temporal accent can occur. First, when an onset is isolated relative to other onsets, it sounds like an accent. Second, when two onsets are grouped together, the second onset sounds accented. Finally, for groups of three or more onsets, the first and/or last tone of the group will be perceived as an accent. While accents explain a large part of how we infer a beat and metrical structure from music, several other processes must be taken into account. First, it must be noted that we sometimes perceive temporal structure without any accents present. Rather, we actually imagine accents where they are not psychically present.

This phenomenon has been termed "subjective rhythmization" and is very apparent when listening to a clock. Whereas every tick of a clock is equal, we often hear every other tick as an accent (e.g., 'tick-tock' instead of 'tick-tick'). Direct evidence for the presence of "subjective rhythmization" in "isochronous" sequences comes from studies comparing the brain response to tones in odd positions (which are subjectively accented) with the response to tones in even positions (which are not subjectively accented). It was found that slightly softer tones were perceived as more salient in odd than in even positions. While this shows the presence of the effect, the mechanism underlying "subjective rhythmization" is still unclear. A second influence on beat induction is our previous experience. Hannon and Trehub showed how cultural background and exposure to music can affect how well we can discern a metrical structure.

Finally, in addition to the influence of an accent structure, subjective rhythmization and our previous experience, the perception of a beat can also be guided by conscious effort (ed: through the "attentional dynamism"). By consciously adjusting the phase or period of the regularity we perceive, we can influence which tones we hear on the beat. For example, when we listen to an isochronous series of tones, without any instruction, we will hear every other tone as accented.

However, by conscious effort, we can project a beat on every third tone, thus adjusting the period of the beat to our will.

This ability has been very useful in examining beat and meter perception, because it can allow us to hear a physically identical stimulus as on the beat or not, depending on the. Any change in neural activity found can then reliably be attributed to beat perception, without having to control for physical differences between tones that are on or off the beat. To summarize, beat induction is guided by the temporal and acoustic structure of events. It is constrained by our perceptual system and can be influenced by our earlier exposure to music, subjective rhythmization and conscious effort. The perception of metrical structure seems specific to the domain of music and is shared with only a limited number of non-human animals. Nonetheless, this ability seems very basic to humans. People readily synchronize to a beat in a wide variety of settings, like concerts, demonstrations, when marching and when singing a song together.

When we listen to music, we induce a beat from the sensory input and then use that information to predict future events within a metrical framework. One way of understanding the mechanisms of beat perception is in the framework of the predictive coding theory. Another prominent theory explaining the interaction between the varying sensory input and beat perception is the Dynamic Attending Theory (DAT) which explains the perception of metrical structure as regular fluctuations in attention. It proposes that internal fluctuations in attentional energy, termed attending rhythms, generate expectancies about when future events occur. When attentional energy is heightened an event is expected. Such a peak in attentional energy is perceived as a metrically strong position, i.e., on the beat. The internal fluctuations in attentional energy can entrain to the rhythm of external events, by adapting their phase and period, which corresponds to how we infer a metrical structure from events in the music. The attending rhythms are self-sustaining and can occur at multiple levels, tracking events with different periods simultaneously. These features correspond respectively to the stability of our metrical percept and the perception of multiple hierarchical levels of regularity. At a neural level, beat and meter perception have been hypothesized to originate from neural oscillations that resonate to external events. In addition, neural oscillations may arise at frequencies that are not in the stimulus, which may be an explanation for the phenomenon of "subjective rhythmization".

Snyder and Large provided some empirical evidence for the neural resonance theory, by showing that high frequency neural oscillations reflect rhythmic expectancy. They presented participants with a rhythm consisting of alternating loud and soft tones, while measuring their brain activity using EEG, the electroencephalography. The results showed that a peak in induced gamma oscillations (20 - 80 Hz) coincided with the sounds. When a loud sound was omitted, this peak was still present, which was interpreted as evidence that the induced activity represented the regular underlying beat, which continued even without physical input. | Henkjan Honing | Fleur L. Bouwer | and Gabor P. Haden.

WHAT IS THE SLOWEST MUSIC HUMANLY POSSIBLE

My question is: this music is too slow to headbang? Is there any limitation on how slow and how brutal a riff can be before we just can't headbang to it anymore is there any limitation to the graveness of it slow down? How slow you can headbanging? How slow you can actually connect two beats in your mind? Or just feel a groove? You're experiencing something that researchers call subjective rhythmization, your brain is organizing sounds into strong and weak beats it's something that we just naturally do whenever we hear a stream of steady pulses, but only within a certain speed. In the psychology of time Paul Price note that above 1800 milliseconds the subjective rhythm is ation becomes impossible, 1800 milliseconds is roughly 33 beats per minute which we can set as a slowest possible musical tempo. How long the perceptual present is? Auditory researcher Diana Deutsch have answered that it's somewhere between three to eight seconds in order for us to feel music and experience subjective rhythmization. Multiple beats need to occur within the perceptual present, if music is too slow, rhythm becomes the literal memory of a pulse, rather than something that you're experiencing in the now, we don't want to remember the groove as we're listening to it, we don't want to think back on that last hit of the snare, as we're head banging we want to feel it, and the human brain is hardwired in a way that we just can't escape.

NON - ISOCHRONOUS MICROTIMING AND MICRORHYTHMING

[...] The beat is the temporal epicenter of countless Western musical traditions. One explanation for the beat's primacy is often framed from a biological stand point. The beat constitutes the most basic form of entrainment, the process by which neural networks in the brain synchronize their firing pattern with the timing pattern of a regularly recurring external stimulus. Via entrainment, the beat may serve an evolutionary purpose by helping to fine-tune and optimize the brain's temporal structures. Neurons fire in synchrony when one performs a learned task, whereas neural activation during unfamiliar tasks is not well synchronized. And gridded rhythms with clear beats elicit higher activity in the brain's motor areas than rhythms with less clear periodicities. The nexus between the motor system and entrainment mechanisms suggests that the beat's role as a catalyst for conscious physical motion (such as foot tapping) is complemented by an equally active subconscious function. [...] In groove contexts, a proposed function of rhythmic complexity generally and of microtiming specifically is to create patterns of tension and equilibrium in relation to the listeners anticipations of a metrical pulse. This beat/motion coupling may inform our negotiation of space. Groove is closely connected to the main functional uses of music; namely, dance, drill, and ritual. When seeking to find a relationship between music and the behavior that groove induces, synchronization and coordination, the temporal properties of the music signal might be crucial to our understanding of groove. Within the significant main effect of the factor Complexity, we were specifically interested in how the participants pupil response was influenced by the timekeeping and the syncopation density. The microtiming factor was investigated similar to the pupil response data.

We found microtiming asynchronies to be positively related to pupil dilation and negatively related to tapping stability. In contrast, we found that steady timekeeping decreased pupil size and increased tapping performance. Microtiming challenges the listener's internal framework of timing regularities, or meter, and demands cognitive effort. [...] The beat (or tactus) is often theorized as one of several isochronous strands within a temporal hierarchy. Ligeti's "Désordre" and "L'escalier du diable" are good examples. One could do away with the grid altogether, an action that dissolves the beat as well. "No grid, no beat" is a frequent result of graphic scores, pointillism, chance, extreme slowness, Impressionistic timelessness, and rhythmic saturation. A gridless beat is a beat containing onsets that are not aligned with its isochronous subdivisions. Gridlessness resembles microtonality's use of pitches not on the equal tempered lattice. Although it is not my wish to embrace pitch / rhythm isomorphisms, the idea that rhythmic dissonance can ensue given non-categorizable temporal ratios parallels that of harmonic dissonance given non equal tempered harmonic ratios. [...] The grid piggybacks on the beat in the form of a hierarchy that is most often metrically parsed. The reason for this, most likely, has to do with subjective rhythmization, the predisposition to mentally organize isochronous sequences of equal tones into groups of twos or fours (and sometimes threes). This process is observable with neurophysiological methods. Brochard measured listeners brain responses to isochronous sequences and found that a slight decrease in amplitude elicited a stronger response when it occurred on a tone whose position was subjectively strong (i.e., position 9 instead of 10 within a binary meter). Once formed, hierarchical structures enhance such interdependent cognitive processes as prediction, attention, clock induction, coding, categorization, grouping, recall, production, and syntax. Tellingly, knowledge of hierarchies is both learned and innate. Experimental evidence shows that sensitivity to temporal hierarchies is as present in adults as it is in children and infants. It is no wonder, then, that the grid plays a strong unifying role in such a wide range of musics, including rhythmically complex ones that employ polyrhythmic or "odd metered" rhythmic textures. [...] Katsuyuki Sakai and his colleagues used brain imaging to point to two distinctive neural representations of rhythm: those that employ simple integer ratios and those that do not.

Complex ratios elicited neural activation in areas involved in higher order cognitive processes, such as attention and working memory. This was not the case with simple ratios. Significantly, the two types of rhythmic patterns led to right and left hemispheric dissociation, supporting the view that rhythm processing is more distributed than previously believed. This also suggests that music containing gridless beats engages regions of the brain not normally tapped by the periodic rhythms found in most beat-based music. Perhaps the ideas contained in this study will serve to counterbalance some of the widespread predilections for coordinated periodicity among hierarchical levels. | Fernando Benadon.

MUSICAL EMOTIONS IN THE ABSENCE OF MUSIC

Research in music and emotion has long acknowledged the importance of extra-musical cues, yet has been unable to measure their effect on emotion communication in music. The aim of this research was to understand how extra-musical cues affect emotion responses to music. participants were instructed to name an emotion in response to written lyric excerpts from eight distinct music genres, using genre labels as cues. Lyrics were presented primed with genre labels (original priming and a false, lured genre label) or unprimed. For some genres, emotion responses to the same lyrics changed based on the primed genre label. We explain these results as emotion expectations induced by extra-musical cues.

This suggests that prior knowledge elicited by lyrics and music genre labels are able to affect the musical emotion responses that music can communicate, independent of the emotion contribution made by psychoacoustic features. For example, the results show a lyric excerpt that is believed to belong to the Heavy Metal genre triggers high valence/high arousal emotions compared to the same excerpt primed as Japanese Gagaku, without the need of playing any music. The present study provides novel empirical evidence of extra-musical effects on emotion and music, and supports this interpretation from a multi-genre, cross-cultural perspective. Participants with high levels of fandom for a genre reported a wider range of emotions in response to the lyrics labelled as being a song from that same specific genre, compared to lower levels of fandom. Can music communicate emotion without the need of sound, through extra-musical cues?

Emotion stereotyping as a cognitive process in music: stereotyping refers to a categorical, generalised, socially-constructed belief about a particular agent, be it a culture, a fan group, or even a music genre. More recently, stereotyping has been proposed as a predictor of emotion in music. The Stereotype Theory of Emotion in Music, STEM hereafter, contends that some music genres may activate an emotion due to a stereotype based trigger. STEM proposes that emotion in music depends in part on the cultural stereotype associated with the music, it was empirically tested by investigating how music activated an emotional stereotype in listeners. Listeners with high familiarity are less likely to stereotype than less familiar listeners because they have more refined mental representations of the stimulus being perceived. And, those with no experience of a specific music genre will less likely stereotype because an association has not been formed between the music and cultural stereotype. Instead, psychoacoustic cues will be used to determine the emotion in the music.

Another study tested for emotional stereotypes in music when controlled for lyrics. This study focused on Heavy Metal and Hip Hop music, often stereotyped as negative. Participants were randomly assigned to rate two Pop (control) and two Heavy Metal (test) excerpts using identical lyrics, or two Pop (control) and two Hip Hop (test) excerpts, again using identical lyrics. After each excerpt, participants were asked to choose which emotion, if any out of a predetermined list of eight options including 'no-emotion', they perceived the music to express. Results revealed that both Heavy Metal and Hip Hop music expressed more negative emotions than Pop music, even though the excerpts had identical lyrics, and despite the emotional content of the lyrics based on sentiment analysis was positive or neutral.

These responses were made by listeners with average to low levels of fandom, corroborating with other studies investigating Death Metal music fandom. Pop music was not perceived as expressing significantly more negative, or other emotion categories, suggesting it was not emotion stereotyped. It was concluded that these results were influenced by the listeners' stereotyping Heavy Metal and Hip Hop, consistent with STEM. While the studies reported above provide empirical support of stereotype effects on emotion communication in music, some variables that may affect the extent to which stereotyping occurs are still to be investigated. First, it remains an open question whether the emotion responses in these studies are due to extra-musical cues or triggered by means of psychoacoustic features. In other words, although a stereotype effect was observed in both studies, it is unclear if these are unrelated to the musical features, such as distorted guitars in Heavy Metal. One way to control for the effect of psychoacoustic cues on emotion is to manipulate them, such as, to change happy-sounding musical features (fast tempo, major mode, etc.) to sound sad. However, this would produce an inferior design because the music may concurrently change its identity, no longer 'sounding like' the target genre. A more radical approach would be to remove the musical features altogether and to invoke the genre using extra-musical cues, such as providing a listener with a lyric combined with a genre label using a written cue without sounded music.

If stereotyping does not occur, it would be expected for lyrics combined with any genre label or without one to communicate the same emotions. Second, a matter of interest would be whether emotion stereotypes and extra-musical cues apply to the same extent across different cultures and different levels of fandom with the music.

The aim of this study was to assess the extent to which emotion stereotypes in response to music are affected by extra-musical cues. A specific hypothesis was tested to inform our aim: Music genre label influences the emotion that song lyrics convey. Extra-musical cues effect: lyric condition combination phase 3 eliminated psychoacoustic features from the emotion elicitation process through the use of the genre label priming paradigm. That is, emotion responses were triggered by extra-musical cues. Emotion stereotyping provides a logical explanation of these results.

According to STEM, information about music can automatically trigger categorical, emotional expectations that are formed through a cultural interaction that is not be informed by music features. This means that in these instances, the sentiment of the lyrics in both primed and unprimed condition triggered the emotion responses, suggesting that emotion stereotyping due to genre label did not take place. Hence, it is possible that stereotyping might be more prominent for some music genres, such as Heavy Metal, Western Opera and Gagaku music in comparison to others, like Pop, or that other factors might be involved, such as fandom [...] Genre characteristic emotions: [...] genre information alone can reliably evoke emotions systematically, building evidence that extra-musical cues, rather than just psychoacoustic features, play a role in the communication of emotion in music. | Marco Susino | Emery Schubert.

THE PARADOX OF SUSPENSE

Tension and suspense are powerful emotional experiences that occur in a wide variety of contexts (e.g., in music, film, literature, and everyday life). The omnipresence of tension and suspense suggests that they build on very basic cognitive and affective mechanisms. However, the psychological underpinnings of tension experiences remain largely unexplained, and tension and suspense are rarely discussed from a general, domain independent perspective. We argue that tension experiences in different contexts (e.g., musical tension or suspense in a movie) build on the same munderlying psychological processes. [...] The relation of emotion and pr ocesses of pr ediction. Tension and suspense are closely related to processes of prediction. These predictive processes have been proposed as a basic principle of human cognition and brain functioning, and they may also play a central role in emotion. Being related to both predictive processes and emotion, tension phenomena could provide the "missing link" that may help to bridge the gap between the "cold" cognitive processes of prediction on the one hand and the "hot" processes of emotion on the other hand, thus integrating predictive processes into a general theory of human affect. [...]

The appeal of many forms of media entertainment such as music, film, or literature, for example, often seems to directly derive from their power to evoke feelings of tension and suspense. Similarly, tension is experienced in a multitude of everyday life situations, most typically during the anticipation of uncertain but, potentially, significant events.

Tension experiences usually originate from events associated with conflict, dissonance, or instability which create a yearning for more stable, or consonant states. This is, for example, illustrated by the way tension and suspense are created in narrative plots (e.g., in films, novels, theater plays, etc.) or in music.

In the Aristotle's Poetics, in which complication is identified as an integral part of tragedy, a basic "suspense formula" employed by playwrights, fiction writers, and Hollywood directors until the present day is to put the protagonist of a story into a situation of conflict that has to be mastered. This creates tension and suspense experiences in the audience that persist until the conflict is resolved and replaced by a more stable state.

Although seemingly very different from suspense in narrative plots, tension experiences evoked by music appear to be governed by similar principles: musical events associated with dissonance or instability create experiences of tension whereas consonant or stable events are associated with resolution and relaxation.

For example, musical chords that deviate from an established tonal key of a musical sequence are perceived as less stable, and accordingly are associated with higher degrees of experienced tension, than "in key" chords. Similar to the biological homeostasis of an organism, tension experiences thus appear to build on a kind of "psychological homeostasis", an urge to resolve psychological conflicts and dissonances and strive, toward stable states of equilibrium. This idea is related to Festinger's theory of cognitive dissonance according to which humans try to resolve psychological dissonances to achieve "consonant" cognitive states.

However, in the context of tension and suspense, the general preference for stable states does not mean that tension experiences are always associated with negative emotion (such as anxiety), nor that stable states of equilibrium are always favored over states of tension. To the contrary, events associated with tension may be perceived as positive because they promise excitement and intense emotional experiences that are usually not experienced in states of constant equilibrium. This is especially true in contexts such as music, film, or literature in which seemingly negative tension experiences can be experienced as positive and rewarding because they usually lack any negative real life implications.

Another important building block of tension experiences is uncertainty (although its exact role in mediating tension and suspense is a matter of debate, see the Section "The Paradox of Suspense"). Similarly, in narrative plots such as novels or movies, uncertainty about the unfolding of events of the plot creates suspense. The uncertainty associated with tension experiences, whether in real life or in narrative plots,often takes the form of an implicit or explicit question (e.g., the classic "Whodunit?" in a detective story), triggering an experience of tension that resolves when an answer to the question is provided. In the absence of a positive resolution, tension experiences can be enjoyed, particularly in forms of media entertainment such as film or literature that often lack a positive resolution (e.g., tragedies, some horror movies, etc.).

The emotional intensity or "thrill" of the tension experience may thus be appreciated for its own sake, and the fictitious events of narrative plots provide an opportunity to experience intense. A key component underlying tension and suspense experiences are future directed processes of expectation, prediction, and anticipation. As events unfold in time (e.g., in real life, fictional worlds, or music), they are constantly evaluated against a background of predictions that is continuously updated during the temporal evolution of events. Anticipated events of emotional significance can then generate experiences of tension or suspense. The resulting tension experiences are closely related to the emotions of hope and fear: anticipated events with positive valence elicit emotions of hope, whereas negative events create fear (or anxiety if the anticipated events are more diffuse and not clearly specified). In typical tension experiences, both emotions can co-occur because often both positive and negative outcomes are possible. In fact, the degree of experienced tension appears to be directly related to the range of anticipated events and their emotional valence.

That is, the experience of tension is more intense if the range of anticipated outcomes varies from highly positive to highly negative events, as opposed to, for example, slightly positive to neutral events. Predictive processes in music, for example, build on long-term knowledge that is acquired over years of exposure to a musical system (e.g., W estern tonal music), as well as short term knowledge that is acquired during the exposure to a specific music piece. Musical events generating strong expectations for upcoming events are then potential triggers of tension.

Notably, these expectations need not necessarily be fulfilled but can be violated, thus generating surprise. Tension and surprise thus can be complementary if a sequence ends with a surprising evnt (e.g., a joke). This is in accordance with Huron who states that "tension is almost the exact opposite of surprise" because "surprise happens after events; tension happens before events". However, if a surprising event does not terminate the sequence (e.g., a deceptive cadence in a musical piece), but rather delays the final event of the sequence, the surprising event might even further increase tension. The build-up, fulfillment, and violation of listeners' expectations has been identified as an important mechanism for the evocation of emotions in music.

If tension experiences build on an urge for uncertainty reduction and processes of expectation, prediction, and anticipation, this raises the question as to how tension can be experienced over repeated exposures to a stimulus. Assuming that uncertainty is resolved after the first exposure, subsequent exposures should have lost their power to create tension or suspense. However, this does not always appear to be the case, and in some contexts, tension experiences seem to be resistant against the loss of uncertainty associated with repeated exposures.

A piece of music can be listened to hundreds of times while still conveying feelings of tension and resolution, and the narrative plots of novels or movies can be experienced as suspenseful even in the absence of uncertainty after several readings or viewings. Moreover, music pieces, novels, or movies often conform to genre specific standards that make it possible to predict outcomes with high accuracy, thus putting the role of uncertainty as a mediator of tension into question. This apparent contradiction known as the paradox of suspense has spurred much discussion, and conflicting accounts have been put forward as possible solutions.

While some authors question the possibility of experiencing suspense in the absence of uncertainty, or that immersing into a suspenseful story for repeated times involves a game of make-believe, in which a kind of feigned uncertainty, not actual uncertainty, causes the experience of suspense.

With regard to music, empirical evidence suggests that unexpected musical events are processed preattentively and automatically with regard to their music-syntactic function. Due to this automatic processing, a musical event can be experienced as music syntactically unexpected, despite familiarity with the piece (which should render all musical events expected). This would account for the experience of musical tension in the absence of uncertainty.

THE HYPERSONIC EFFECT: HIGH RESOLUTION AUDIO

High resolution audio has a higher sampling frequency and a greater bit depth than conventional low resolution audio such as compact disks. The higher sampling frequency enables inaudible sound components (above 20 kHz) that are cut off in low resolution audio to be reproduced. Previous studies of high resolution audio have mainly focused on the effect of such high frequency components. It is known that alpha band power in a human electroencephalogram (EEG) is larger when the inaudible high-frequency components are present than when they are absent. Traditionally, alpha band EEG activity has been associated with arousal level. However, no previous studies have explored whether sound sources with high frequency components affect the arousal level of listeners.

The present study examined this possibility by having 22 participants listen to two types of a 400-s musical excerpt of French Suite No. 5 by J. S. Bach (on cembalo, 24 bit quantization, 192 kHz A/D sampling), with or without inaudible high frequency components, while performing a visual vigilance task. High alpha (10.5 - 13 Hz) and low beta (13 - 20 Hz) EEG powers were larger for the excerpt with high frequency components than for the excerpt without them. Only a subjective rating of inactive pleasantness after listening was higher for the excerpt with high-frequency components than for the other excerpt.

The present study shows that high resolution audio that retains high frequency components has an advantage over similar and indistinguishable digital sound sources in which such components are artificially cut off, suggesting that high resolution audio with inaudible high frequency components induces a relaxed attentional state without conscious awareness.

High resolution audio has recently emerged in the digital music market due to recent advances in information and communications technologies. Because of a higher sampling frequency and a greater bit depth than conventional low-resolution audio such as compact disks (CDs), it provides a closer replication of the real analog sound waves. Sampling frequency means the number of samples per second taken from a sound source through analog to digital conversion.

Bit depth is the number of possible values in each sample and expressed as a power of two. A higher sampling frequency makes the digitization of sound more accurate in the time frequency domain, whereas a greater bit depth increases the resolution of the sound. What kind of advantage does the latest digital audio have for human beings? This question has not been sufficiently discussed. The present investigation used physiological, behavioral, and subjective measures to provide evidence that high resolution audio affects human psychophysiological state without conscious awareness.

The higher sampling frequency enables higher frequency sound components to be reproduced, because one half of the sampling frequency defines the upper limit of reproducible frequencies (as dictated by the Nyquist–Shannon sampling theorem). However, in conventional digital audio, sampling frequency is usually restrained so that sounds above 20 kHz are cut off in order to reduce file sizes for convenience. This reduction is based on the knowledge that sounds above 20 kHz do not influence sound quality ratings and do not appear to produce evoked brain magnetic field responses. In contrast to this conventional digital recording process in which inaudible high frequency components are cut off, high resolution music that retains such components has been repeatedly shown to affect human electroencephalographic activity.

This effect is often called "hypersonic effect". These studies also suggest that it is difficult to distinguish in a conscious sense between sounds with and without inaudible high frequency components. Some studies have shown that full range audio is rated as better sound quality (e.g., a softer tone, more comfortable to the ears) than high-cut audio. Another study has shown that participants are not able to distinguish between the two types of digital audio, with no significant differences found for subjective ratings of sound qualities. Previous studies have examined the effect of inaudible high frequency components on EEG activity while listening to music under resting conditions. It has been shown that EEG alpha band (8 - 13 Hz) frequency power is greater for high resolution music with high frequency components than for the same sound sources without them. The effect appears more clearly in a higher part of the conventional alpha band frequency of 8–13 Hz, low beta band (14–20 Hz) EEG power also showed the same tendency to increase as high alpha band EEG power. A study using positron emission tomography (PET) revealed that the brainstem and thalamus areas were more activated when hearing full range as compared with high cut sounds. Because such activation may support a role of the thalamus in emotional experience and also in filtering or gating sensory input, Oohashi speculated that the presence of inaudible high frequency components may affect the perception of sounds and some aspects of human behavior.

Another line of research suggests a link between cognitive function and alpha band as well as Beta band EEG activities. Alpha band EEG activity is thought to be associated not only with arousal and vigilance levels but also with cognitive tasks involving perception, working memory, long term memory, and attention. Moreover, beta power has been shown to increase with corresponding increases in arousal and vigilance levels, which indicates that participants get engaged in a task. What kind of advantage does high resolution audio with inaudible high frequency components have for human beings?

What remains unclear is what kind of psychophysiological states high resolution audio induces, along with the corresponding increase in alpha and beta band EEG activities. High resolution audio with inaudible high frequency com ponents, or "hypersonic effect" is a closer replication of real sounds than similar and indistinguishable sounds in which these components are artificially cut off.

It remains unclear what kind of advantages high resolution audio might have for human beings. As a mechanism underlying the effect of inaudible high frequency sound components, we speculate that the brain may subconsciously recognize high resolution audio that retains high frequency components as being more natural, as compared with similar sounds in which such components are artificially removed. A link between alpha power and ratings of ‘naturalness’ of music has been reported. When listening to the same musical piece with different tempos, alpha band EEG power increased for excerpts that were rated to be more natural, the ratings of which were not directly related to subjective arousal. As high resolution audio replicates real sound waves more closely, it may sound more natural (at least on a subconscious level) and facilitate music related psychophysiological responses. Even without conscious awareness, a closer replication of real sounds in terms of frequency structure appears to bring out greater potential effects of music on human psychophysiological state and behavior. | Ryuma Kuribayashi | Hiroshi Nittono.

MUSIC WITHOUT SOUND

Music without sound can refer to music that falls outside the range of human hearing or to compositions, such as visual music, that are analogous to or suggestive of conventional music but in media other than sound, such as color, shape, position, motion and literature (Discursive Music, like "The Sonate de Vinteuil" which is an imaginary violin and piano sonata by fictitious composer Vinteuil recurring several times in Marcel Proust's "A La Recherche Du Temps Perdu", particularly in "Un Amour De Swann"), Gesture Music, Gestural Music, Text Based Music, Imaginary Music, Allucinatory Music or Conceptual Music, etc. It is commonly taken for granted that music is wont to be performed or recorded, but some sound works simply won't fit on a disc or on stage, being either extremely discreet (like Robin Minard's Silent Music) or uncomplete (Varèse's Unfinished music). Additionally, silence can be regarded as the via negativa of music and has induced long lasting fascination to music composers of all kinds. A composer deals with the absence of sound as much as he deals with sounds: including Apophasis in music, like acting, gestures, behaviours, etc. Silence in music happens when the music stops during a performance. It is sometimes replaced by gesture music. In his Sofia Gubaidulina biography, Kurtz mentions the silent solo performance by the conductor included in "Stimmenn...Verstummen", an orchestral work from 1986. The symphony is notable for its careful and innovative use of silence.

Though the eighth movement has the largest proportions of the work, the climax actually takes place in the ninth movement when the conductor motions before a silent orchestra. The motions the conductor makes are meant to make his hands move increasingly farther apart from each other according to the Fibonacci sequence. This "conductor solo" is repeated at the end of the work, when after the last note is sounded the conductor continues to motion for several minutes. From 1960, the International Fluxus Movement created a number of Events or Verbal Pieces, whose temporal structures were typically vague so as to be sometimes without beginning nor end, with or without sound, with or without music. A remarkable example is that of Czech artist Milan Knizak's 1965 "Snow-storm N°1" whose score states: "Paper gliders are distributed to an idle and waiting audience". The score simply instructs that.

What results is a snowstorm of quietly gliding paper airplanes as the audience returns them back and forth and so on. The exchange of sheets is experimentaly beautiful, like the caring gesture toward the instrument as tended by Brecht. Lachenmann composed "Salut Für Caldwell" for 2 guitars in 1977. The piece includes silent moments when the players silent motions and gestures created a space of unheard music. In 1963 Takehisa Kosugi composed for Fluxus 1 a musical piece called "Theatre Music" in the form of a rectangle of cardstock that bore the trace of a spiral of moving feet. This was paired with the instructions: "Keep walking intently". | Bshy.Krt. Vrtt.kr.

GESTURE MUSIC

In music, gesture is any movement, either physical (bodily) or mental (imaginary). As such "gesture" includes both categories of movements required to produce sound and categories of perceptual moves associated with those gestures.

This, obviously, is a long way from how "gesture" is used to evoke a meaning - bearing body motion in linguistics, although it may be argued that there are some motion - like qualities in what is being conveyed in the musical sound as well. One reason many music researchers embrace the term gesture is because it allows us to make a bridge between movement and meaning. As we have seen previously, movement can be described as the physical displacement of an object in space over time.

Meaning, on the other hand, denotes the mental activation of an experience. The notion of gesture may therefore be argued to cover both movement and meaning, and therefore bypasses the Cartesian divide between matter and mind. As such, the term gesture provides a tool for crossing the traditional boundary between the physical and the mental world. | University of Oslo.

It is thus necessary to imagine radically new theoretical forms in order to speak to new realities. Music, the organization of noise, is one such form. It reflects the manufacture of society; it constitutes the audible waveband of the vibrations and signs that make up society. | Jacques Attali. [...] 1960s ushered in the era of open experimentation (e.g. Fluxus), and art criticism responded with new terms: timesthesia, electronic mystique, infinity expansion, time lag, image dislocation, communication of time shifts, aesthetic phenomenology, extra-dimensionality, among others. All of these terms denote attempts to cope with an art that places actual time measurement at the core of experience while assuring that experience is derived psychically, i.e., by mentally reactive characteristics within us. Form was not the language, only a by-product (residual) or an appearance (a prese structure, conceptual in design). The very idea of time (measured or nonmeasured) in the conventional sense was dislodged and removed altogether. Time could no longer be measured as units of sound passed by, nor could any sequential organization of sound exist. The idea of a 'single sound' that would normally have some type of morphological standing ceased to exist and was replaced by an emphatically phenomenal and experiential situation, as attention shifted fully onto the interior, vertical dynamics of the sound and upon the act of listening. Practically any sound contains elements within it that may need a duration longer than the life of the sound itself to come into being and to interact with other elements of a sound: sustaining a sound allows these activities to exist. The sustained sound, in all its dynamics, is not only to be heard but also to be transformed by the act of listening itself, with changing positions of the head, with the more noticeable thresholds and durations of attention. The unfolding of the dynamics of the sound within a particular space, relative to the heightened experience of a constantly modulating mode of listening, provided the markers for this new sense of time. The diminishment of time also accentuates the spatiality of sound. Sustained sound can occupy and be heard differently in different rooms and from different places within a room, and it also may 'drift' from one spot to another. A space 'filled' with an almost palpable sound develops around one's body, thereby heightening a sense of corporeality, especially when the body is vibrated by amplified sound. | Douglas Kahn.